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Indian Standard

SPECIFICATION FOR STEEL ACCESSORIES FOR MARINE PIPING SYSTEMS

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Indian Standard
SPECIFICATION FOR STEEL ACCESSORIES FOR MARINE PIPING SYSTEMS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 9 July 1968, after the draft finalized by the Shipbuilding Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 Out of the numerous steel pipe accessories used in the shipbuilding industry, this standard covers only such items that are in more common use. This standard covers only the dimensions that are essential for interchangeability. Other dimensions are left to the discretion of the manufacturer depending on the end use of accessories. The purchaser should furnish the full details, such as service pressure, temperature and other particulars relating to the conditions of use of the accessories.

0.3 While same accessories with slight variations also are available, attempt is made to cover only the popular and better types which are economical, easy to produce and does not affect the strength requirements.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard gives the material and dimensions for the following steel accessories for marine piping systems:

a) Threaded welding socket (*see* Table 1),
b) Drain plug (*see* Table 2),
c) Suction funnel (*see* Table 3),
d) Collecting funnel (*see* Table 4),
e) Changeover bend (*see* Table 5), and
f) General purpose clamp (*see* Table 6).

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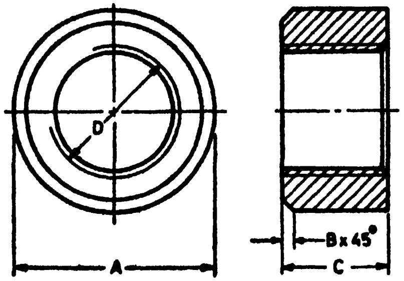
* Rules for rounding off numerical values (*revised*).

TABLE 1 DIMENSIONS FOR THREADED WELDING SOCKETS

(*Clauses* 1.1, 5.1 *and* 6.2)

All dimensions in millimetres.



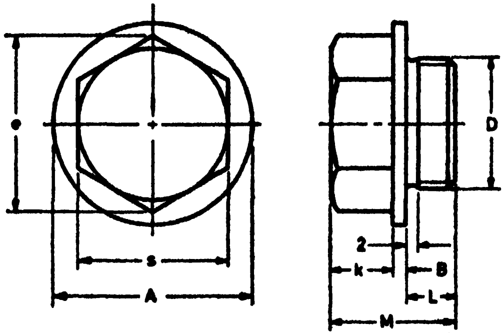
*D**	*A*	*B*	*C*
	±1·5		±1·0
P 3/8	26	2·0	13
P 1/2	32	2·0	17
P 3/4	38	2·5	19
P 1	45	2·5	22
P 1 1/4	56	3·0	24

*Designation according to IS : 554-1964 ' Dimensions for pipe threads for gas list tubes and pressure tight screwed fittings (*revised*) '.

TABLE 2 DIMENSIONS FOR DRAIN PLUGS

(*Clauses* 1.1, 5.1 *and* 6.2)

All dimensions in millimetres.



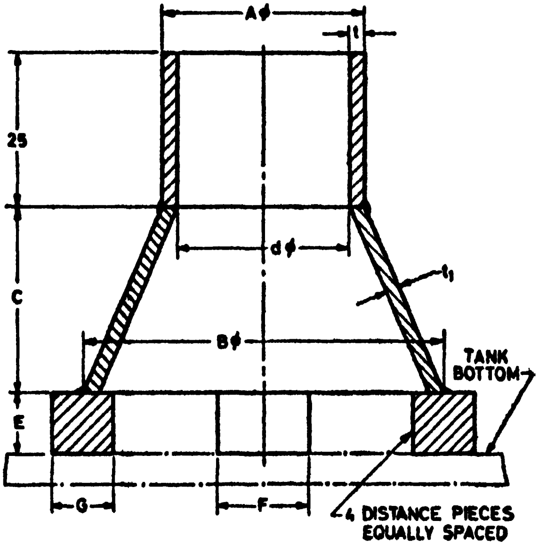
*D**	*A*	*B*	*k*	*L*	*M*	*s*	*e*
	±1·5		±1·0	±1·0	±1·0		
P 3/8	26	2	8	7	17	19	22·0
P 1/2	32	2	10	8	20	24	27·7
P 3/4	38	3	13	9	25	30	34·6
P 1	45	3	15	10	28	36	41·6
P 1 1/4	56	3	17	12	32	46	53·1

*Designation according to IS : 554-1964 ' Dimensions for pipe threads for gas list tubes and pressure tight screwed fittings (*revised*) '.

TABLE 3 DIMENSIONS FOR SUCTION FUNNELS

(*Clauses* 1.1 *and* 5.1)

All dimensions in millimetres.



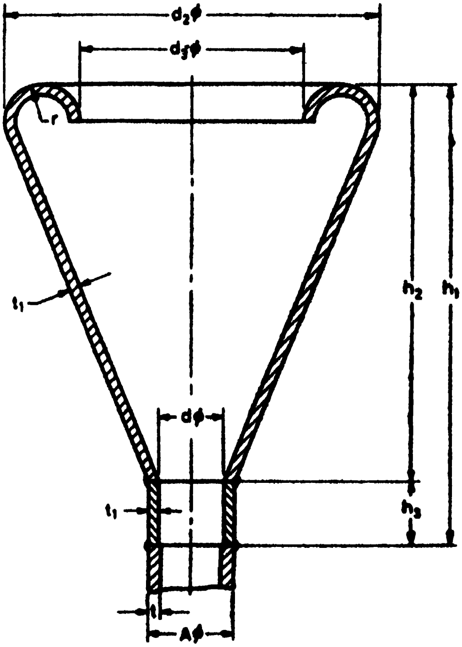
NOMINAL BORE *d*	*A* × *t**	*B*	*C*	t_1	*E*	*F*	*G*
25	33·7 × 2·65	60	30	2·50	10	15	10
32	42·4 × 2·65	80	35	2·50	12	15	10
40	48·3 × 2·90	100	50	2·50	15	15	10
50	60·3 × 2·90	120	60	2·60	20	15	10
65	76·1 × 3·25	140	90	3·00	20	25	10
80	88·9 × 3·25	170	110	3·00	25	25	10
100	114·3 × 3·65	205	120	4·00	25	30	10
125	139·7 × 4·85	235	125	4·00	30	30	10
150	165·1 × 4·85	270	150	4·00	35	30	10
200	219·1 × 5·50	320	150	6·00	45	30	10

*Sizes according to IS : 1239-1964 'Specification for mild steel tubes and tubulars (*revised*)'.

TABLE 4 DIMENSIONS FOR COLLECTING FUNNELS

(*Clauses* 1.1 *and* 5.1)

All dimensions in millimetres.



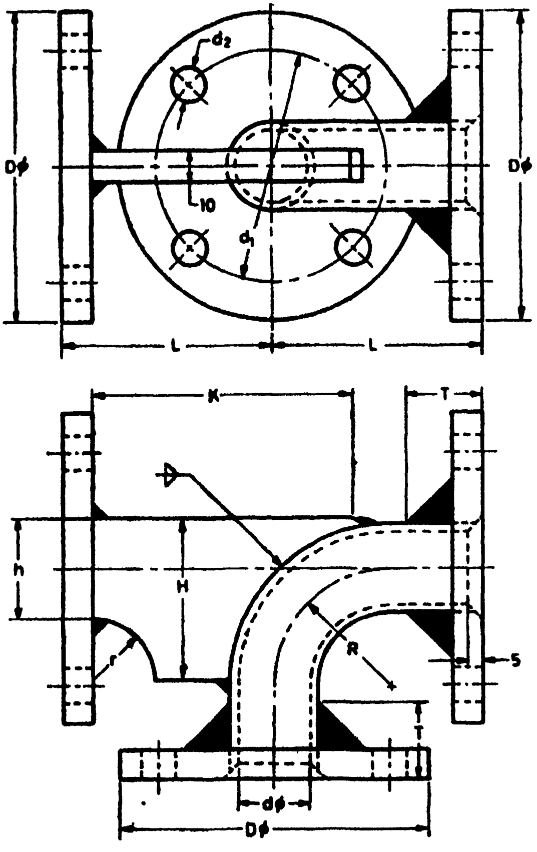
NOMINAL BORE *d*	$A \times t$*	d_2	d_3	h_1	h_2	h_3	r	t_1
8	13·5 × 1·80	60	36	74	64	10	6	1·60
10	17·2 × 1·80	65	41	77	67	10	6	1·60
15	21·3 × 2·00	75	43	85	73	12	8	1·60
20	26·9 × 2·35	85	53	90	78	12	8	1·60
25	33·7 × 2·65	98	58	100	84	16	10	1·60
32	42·4 × 2·65	110	70	112	96	16	10	1·60
40	48·3 × 2·90	125	77	124	104	20	12	2·00
50	60·3 × 2·90	160	104	140	120	20	14	2·00
65	76·1 × 3·25	180	116	170	145	25	16	2·00
80	88·9 × 3·25	210	138	185	160	25	18	2·00
100	114·3 × 3·65	245	165	215	185	30	20	2·00
125	139·7 × 4·85	290	194	255	220	35	24	2·50
150	165·1 × 4·85	340	228	295	255	40	28	2·50

*Sizes according to IS : 1239-1964 ' Specification for mild steel tubes and tubulars (*revised*) '.

TABLE 5 DIMENSIONS FOR CHANGEOVER BEND

(*Clauses* 1.1 *and* 5.1)

All dimensions in millimetres.



NOMINAL BORE *d*	*L*	*K*	*H*	*h*	*R*	*r*	*T*	*D**	d_1*	d_2*	*n*†
25	68	84	52	32	38	20	25	100	75	11	4
32	78	98	65	40	48	25	25	120	90	14	4
40	90	114	73	48	60	25	25	130	100	14	4
50	110	140	86	60	75	26	30	140	110	14	4
65	133	184	104	78	98	26	30	160	130	14	4
80	155	200	118	90	120	28	30	190	150	18	4
100	185	240	138	110	150	28	30	210	170	18	4
125	228	305	165	135	188	30	35	240	200	18	8
150	265	345	192	160	225	32	35	265	225	18	8

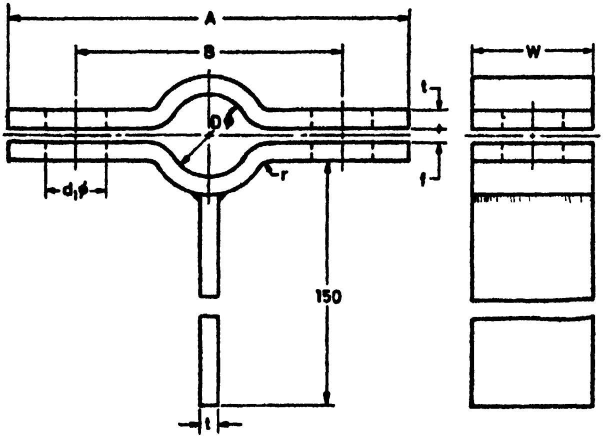
*Dimensions according to Draft ISO Recommendation No. 1311 ' Mating dimensions for flanges for ships' pipelines '.

†Number of holes.

TABLE 6 DIMENSIONS FOR GENERAL PURPOSE CLAMP

(*Clauses* 1.1 *and* 5.1)

All dimensions in millimetres.



NOMINAL BORE *d*	*D*	*A*	*B*	d_1*	*f*	*r*	*W*	*t*	BOLT
8	13·5	66	44	10·0	2	2	20	3	M8 × 20
10	17·5	70	44	10·0	2	3	20	3	M8 × 20
15	21·4	73	47	10·0	4	3	20	3	M8 × 20
20	27·0	88	61	12·0	5	4	25	3	M10 × 25
25	34·1	96	66	12·0	5	4	25	3	M10 × 25
32	42·9	106	76	12·0	6	5	30	3	M10 × 30
40	48·4	112	82	12·0	6	5	30	5	M10 × 30
50	60·3	130	98	15·0	7	6	30	5	M12 × 35
65	76·3	146	114	15·0	7	6	40	5	M12 × 35
80	88·9	160	128	15·0	7	6	40	5	M12 × 35
100	114·3	200	162	19·0	9	8	50	6	M16 × 45
125	139·7	226	188	19·0	9	8	50	6	M16 × 45
150	165·1	252	214	19·0	9	8	50	10	M16 × 45

*Sizes according to coarse series of IS : 1821-1967 'Dimensions for clearance holes for metric bolts (*first revision*)'.

2. DESCRIPTION AND USAGE

2.1 Threaded Welding Socket — Welding sockets with internal threads enable fitting of thermometers, drain plugs, valves, etc, on to the piping system. These are welded on to the pipes of tanks.

2.2 Drain Plugs — Drain plugs are used in conjunction with the threaded welding sockets. The drain plugs enable periodical draining of pipes and tanks.

2.3 Suction Funnel — The suction funnel is an inverted funnel, with distance pieces of adequate height to allow full flow of the oil or water. It may be welded on to the tail end of the suction pipe instead of flaring the same. It is used with ballast, oil and bilge lines.

2.4 Collecting Funnel — Individual drain pipes of equipment like coolers, heaters and heat exchangers drain into a common collecting funnel from where they are led to bilges or tanks provided for this purpose.

2.5 Changeover Bend — Changeover bends and straight pieces are used in pipe lines to avoid the inadvertent mixing of oil and water, fresh water and salt water, diesel oil and heavy fuel oil, and for such other similar purposes. Such an arrangement eliminates the duplication in piping system.

2.6 General Purpose Clamps — Clamps lined with packing are used to support pipes and prevent vibration being transmitted to the pipes from the shell, other plates and structurals.

3. GENERAL REQUIREMENTS

3.1 The screw threads for drain plug and welding socket shall conform to IS : 554-1964*.

3.2 Where the galvanizing is specified it shall be done only after complete fabrication of the parts.

3.3 The pipes used in the fabrication of suction and collecting funnels shall be in accordance with IS : 1239-1964†.

4. MATERIAL

4.1 The steel used for threaded welding socket and drain plug shall have a chemical composition as given in 5 of IS : 2255-1962‡.

4.2 The steel plates used for the fabrication of suction funnel, collecting funnel, changeover bend and general purpose clamps, shall conform to IS : 226-1962§ or IS : 2062-1962||.

4.3 The suction and collecting funnels, when used with water lines, shall be galvanized according to IS : 2633-1964¶.

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*Dimensions for pipe threads for gas list tubes and pressure tight screwed fittings (*revised*).

†Specification for mild steel tubes and tubulars (*revised*).

‡Specification for mild steel wire rod for the manufacture of machine screws (by cold heading process).

§Specification for structural steel (standard quality) (*third revision*).

||Specification for structural steel (fusion welding quality).

¶Methods of testing weight, thickness and uniformity of coating on hot dipped galvanized articles.

5. SHAPE AND DIMENSIONS

5.1 The shape and dimensions for threaded welding socket, drain plug, suction funnel, collecting funnel, changeover bend and general purpose clamps shall be in accordance with Tables 1 to 6, respectively.

6. TOLERANCES

6.1 Tolerance on dimensions for suction and collecting funnels, changeover bend and general purpose clamp shall be as given below:

Above 6 mm up to 30 mm	±1 mm
Above 30 mm up to 100 mm	±1·5 mm
Above 100 mm up to 300 mm	±2·0 mm
Above 300 mm up to 1 000 mm	±3·0 mm

6.2 Tolerance on dimensions for welding socket and drain plugs, shall be as shown in Tables 1 and 2 respectively.

7. DESIGNATION

7.1 The various steel accessories for marine piping systems conforming to this standard shall be designated by its name and nominal size.

Example:

A threaded welding socket of nominal size P⅜ conforming to this standard shall be designated as:

Threaded Welding Socket P⅜

8. MARKING

8.1 Nominal size of the steel accessory for marine piping systems shall be stamped on the fitting.

8.1.1 The fitting may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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AMENDMENT NO. 1 APRIL 1978

TO

IS : 4693 - 1968 SPECIFICATION FOR STEEL ACCESSORIES FOR MARINE PIPING SYSTEMS

Alterations

(*Page* 9, *clause* 4.3, *line* 2) — Substitute 'IS : 4736 - 1968¶' *for* 'IS:2633 - 1964¶'.

(*Page* 9, *foot-note with* '¶' *mark*) — Substitute the following for the existing matter:

'¶Specification for hot-dip zinc coatings on steel tubes.'

(MCPD 1)

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